

REMARKS

Claims 1-21 are pending in the application and stand rejected. Claims 1, 5, 7, 9, 11-14, and 16-20 have been amended. The Examiner's reconsideration of the claim rejections in view of the above amendments and following remarks is respectfully requested.

Specification Objection:

An objection was made to the specification for the reason set forth on page 2 of the Office Action. Applicants have amended the Specification as suggested. Accordingly, withdrawal of the objection is requested.

Claim Rejections- 35 U.S.C. § 102(b):

Claims 1-5, 9-11, 13, 16, 17 and 19 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,006,593 to Yamanaka.

At the very minimum, independent claims 1, 9 and 16 are believed to be patentably distinct and patentable over Yamanaka because Yamanaka does not disclose or suggest *scanning a semiconductor wafer with an atomic force microscope to determine a position of an alignment feature based on the elasticity difference between the alignment feature and the material surrounding the feature, wherein the determined position of the alignment feature is used for alignment*, as essentially claimed in claims 1, 9 and 16.

Although Yamanaka discloses using acoustic energy for material and defect inspections of VLSI wafers (col. 8, lines 9-13), there is nothing in Yamanaka that discloses or suggest using atomic force microscopes to determine positions of alignment features on the wafer for purposes of alignment in semiconductor fabrication. Indeed, even Examiner acknowledges (on page 3 of the Office Action) that Yamanaka does not disclose aligning the feature with a feature on a mask.

Therefore, claims 1, 9 and 16 are believed to be patentably distinct and patentable over Yamanaka. In addition dependent claims 2-5, 10-11, 13, 17 and 19 are believed to be patentably distinct and patentable over Yamanaka at least by virtue of their dependence from respective base claims 1, 9 and 16. Accordingly, the withdrawal of the claim rejections under 35 U.S.C. § 102(b) is respectfully requested.

Claim Rejections- 35 U.S.C. § 103(a):

The following obviousness rejections have been asserted: Claims 7, 8, 14, 15, 20 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamanaka in view of Mizutani (U.S. Patent No. 6,304,319); and Claims 6, 12 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamanaka in view of Weling (U.S. Patent No. 5,757,502).

To establish a prima facie case of obviousness based on a combination of references, various criteria must be met. For instance, the combination *must* teach or suggest all the claim limitations. Further, there must be some suggestion or motivation in the references or in the knowledge generally available to one skilled in the art to combine their teachings. The teaching or suggestion to make the claimed combination must both be found in the prior art and not based on impermissible hindsight in view of applicant's disclosure (see, e.g., MPEP 2141, 2143, 2143.03).

The above obviousness rejections, as based in part, on the contention that Yamanaka discloses the inventions of base claims 1, 9 and 16. However, for the reasons set forth above, Yamanaka does not disclose or suggest elements of claims 1, 9 and 16. Therefore, the above obviousness rejections are legally deficient on their face.

In any event, neither Mizutani nor Weling cure the deficiencies of Yamanaka. For instance, Mizutani teaches using detecting the position of alignment marks using detection light (see, e.g., Col. 2, lines 48-50), which teaches away from the claimed inventions. Further, Weling is directed to a method for measuring height differences on the surface of a semiconductor die using AFM (see, e.g., Claim 1; and Col. 5, line 61- Col. 6, line 12.). Therefore, for at least the above reasons, the withdrawal of the rejections under 35 U.S.C. 103 is respectfully requested.

In view of the foregoing remarks, it is respectfully submitted that all the claims now pending in the application are in condition for allowance. Early and favorable action is respectfully requested.

Respectfully submitted,



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